College of Art and Science
Department of Physics
Course Syllabus

3 Credit Hours

SCI –106: Physical Science Survey II

I. Course Description

This is a course in physical science designed for non-science majors. Topics covered include the fundamental of chemistry, astronomy, geology, and meteorology. Also a two contact hour laboratory class is designed to accompany SCI 106. In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are planetary motion, geology, and atmospheric science. Pre-req: Science 105.

II. Rationale

Physical Science Survey II is a one-semester lecture course for non-science majors covering the basic concepts in chemistry, astronomy, geology, and meteorology. Some topics to be covered are electricity and magnetism, chemical elements, chemical bonding, and chemical reactions. In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are coordinates, latitude and longitude, the seasons, the solar system, the universe, the atmosphere, and geology.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.
- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.
- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the physical environment and its relationship to man
- Understand scientific laws, principles, and theories
- Think critically and independently and be able to reason effectively

- Be proficient in oral articulation and written expression
- Be adept in general and scientific terminology

V. Course Content

- The Solar System

The Planet Earth
The Solar System
The Outer Planets
The Origin of the Solar System
Outer Planetary Systems

- Place and Time

Latitude and Longitude
Locations of the North and South poles
Location of the Equation
Time Zones

- The Moon

General Features
History of the Moon
Lunar Motion
Phases
Eclipses
Tides

- The Universe

- The Atmosphere

Composition
Origin
Vertical Structure
Energy Content
Atmosphere Measurements

- Wind and Clouds

Causes of Air Motion
Local Winds and World Circulation
Jet Streams
Cloud Classification
Cloud Formation
Condensation and Precipitation

- Air Masses and Storms

Air Masses
Fronts and Cyclonic Disturbances
Local Storms

Tropical Storm

- Weather Forecasting
  The National Weather Service
  Data Collection and Weather Observation
  Weather Maps
  Folklore and the Weather

- Atomic Physics
- The Chemical Elements
  Law of Conservation of Mass
  Law of Definite Proportions
  Dalton's Atomic Theory
  Covalent Bonding
  Two Other Types of Bonding
- Chemical Reactions
  Chemical and Physical Properties and Changes
  Chemical Equilibrium
  Balancing Equations
  Energy and Rate of Reaction
  Acid and Bases
  Oxidation-Reduction Reactions

VI. Learning Activities

Lecture/Note-taking
Class Discussions
Problem-Solving

VII. Special Course Requirements

None

VIII. Evaluation Procedures

A lecture quiz will be given after completion of each chapter. Each quiz will be announced in advance. Exams will consist of a selection of multiple choice items, essay questions, and problem solving.

An exam will be given after the return and review of quiz material to determine the students' cumulative knowledge about each chapter. Each exam will be announced in advance. The grade in the course will be calculated using the following formula and scale:

Exams	=	70%
Quizzes	=	15%
Participation	=	15%
Total	=	100%
Grading scale: A	=	90 or more points
B	=	80 – 89 points

C = 70 – 79 points
D = 60 – 69 points
F = 59 or below

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX. References

Textbook:

Shipman, J. T., Wilson, J. D., and Todd, A. W., *An Introduction to Physical Science, 11th Ed.* Houghton Mifflin Company, New York, NY, 2003.

Dixon, Robert M., *Physics and Technology For The Liberal Arts*, 3rd Ed. Kendall/Hunt Publishing Company, 2003.

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.